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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/502,500

07/23/2004

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28481 7590 06/22/2007
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EXAMINER

LAZORCIK, JASON L

ART UNIT

PAPER NUMBER

1731

MAIL DATE

DELIVERY MODE

06/22/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/502,500	Applicant(s) BOGDAHN ET AL.	
	Examiner Jason L. Lazorcik	Art Unit 1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 12-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-11 and 21-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-11 and 21-28, drawn to a method for producing a cylindrical glass body in a vertical drawing process.

Group II, claim(s) 12-20, drawn to an apparatus for producing a cylindrical glass body in a vertical drawing process.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: an apparatus and method are known in the art which utilize a "draw off device" comprising a reference roll and auxiliary rolling bodies wherein the torque of said reference body is set in response to the weight of a drawn glass strand and wherein the torque of the auxiliary rollers is subsequently set in response to the torque of the reference roll. Therefore since the special technical feature linking the identified Groups I and II is known and the proposed inventions have achieved separate status and separate classification in the art, a consolidated search of both would constitute a serious burden upon the office.

During a telephone conversation with Andrew Tiajolloff on June 4, 2007 a provisional election was made without traverse to prosecute the invention of Group I,

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claims 1-11 and 21-28. Affirmation of this election must be made by applicant in replying to this Office action. Claims 12-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6-10 and 21-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 6 and 10 recites the limitation "said rolling bodies", however it is unclear which rolling bodies Applicant intends as the antecedent (e.g. the reference rolling body, the at least one rolling body, or the collective rolling bodies of the first draw-off unit). For purposes of examination, the Examiner interprets the claim language to include all rolling bodies of the first draw-off device.

Similarly, Claims 8, 21, 23, 25, and 27 make reference to "said rolling bodies". Again, it is unclear exactly which of the identified rolling bodies of the first draw-off unit and/or the at least one additional draw-off unit applicant intends as the antecedent. In this case, the Examiner has interpreted the claim language as inclusive of all previously identified rolling bodies of the draw-off device.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

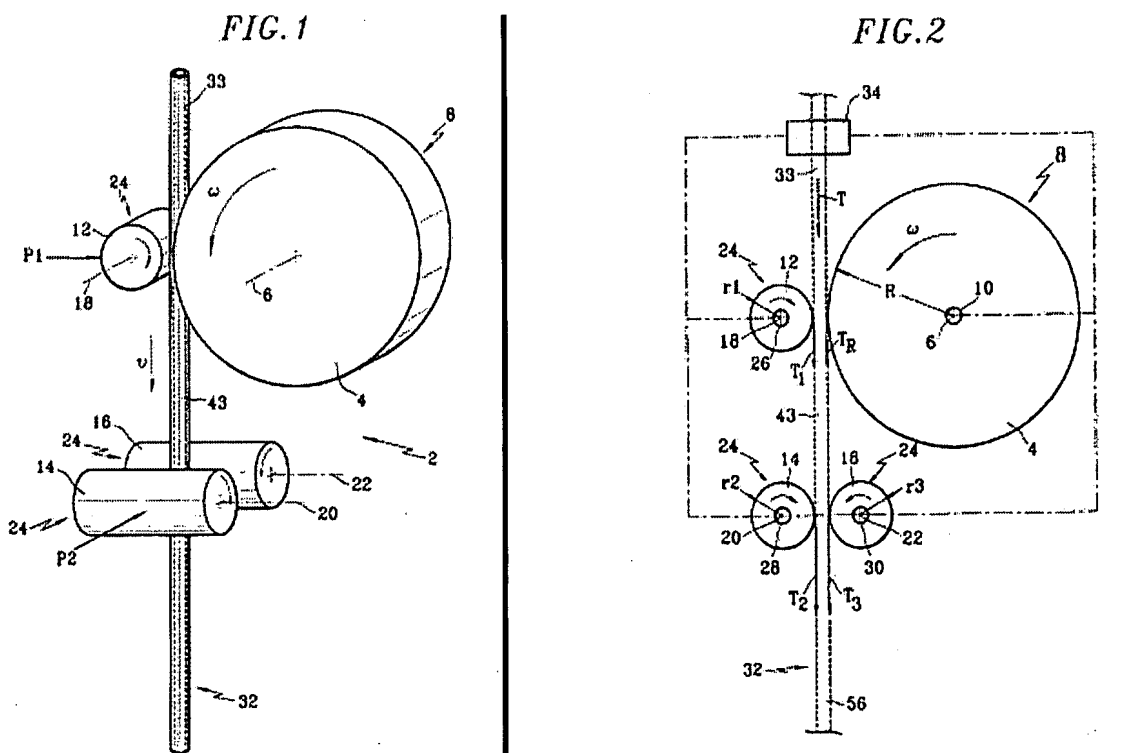
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7 and 9 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over the French Patent to Boscher (FR 2,767,810 – Please note machine translation utilized for basis of rejection). Broadly, Boscher teaches a method of drawing a glass ingot into a capillary having external and internal diameters of highly precise dimensions.

The method comprises first supplying said ingot to the heating zone of a furnace to heat soften the glass preform (Pg 3, lines 23-26). With particular reference to the following excerpt figure 2, Boscher discloses a “draw-off device” (2) for use in a vertical drawing method whereby a glass strand is drawn from the heat softened glass at a “controlled drawing speed”. The draw-off device (2) comprises a “first draw-off unit” (4, 12) including a “reference rolling body” (4) and “at least one auxiliary rolling body” (12) distributed about the circumference of the drawn glass strand (33).

The draw-off device (2) further comprises “at least one additional draw-off unit” (14, 16) including a plurality of rolling bodies (Claim 3). The plurality of rolling bodies (14, 16) are adapted to provide an adjustable contact pressure with a “means of pressure” (Pg 3, lines 43-44, and Pg 4, lines 37-44) or “a damper” (**Claim 9**) which is understood to be “movable in a direction perpendicular to the long axis of the glass strand” (**Claim 4, 6**).



The reference specifically teaches (Page 1, Lines 29-35) that “the body of drive (4) gives to the stem exactly speed necessary for the diameters to be obtained” and that “a relatively moderate pressure of the stem on the body of drive makes it possible to obtain a contact of bearing without any slip of the stem on the body of drive”. Continuing, the instant reference discloses (Page 3, lines 31-33) that “Device 2 comprises an engine of

control speed 10. This engine is adapted to give to wheel 4 a speed of rotation by maintaining this speed constant even when wheel 4 is subjected to a couple of variable intensity".

From the above teachings, it is understood that the drawing speed of the glass strand is "controlled" via the rotational speed of the reference rolling body (4) as claimed.

Additionally, the drawing action is executed at a constant speed and "without any slip of the stem" which indicates no relative acceleration in the vertical direction. Therefore, a force balance upon the glass stem implies that "a value of torque of said reference rolling body" and "a contact pressure force" (**Claim 7**) are regulated at least in part with respect to "the weight of the drawn-off glass strand".

Boscher then discloses (Page 2, lines 8-9) that "the body of drive (4) and the body of traction (12) are adapted to exert on the stem of the identical respective tractive efforts between them." Here the machine translation of "tractive effort" is understood to be equivalent to the claimed torque ("a traction $TR = R * CR$ " see page 4, lines 12-30), and from this it follows that the torque of the reference rolling body (4) is utilized as a target or "setpoint" for setting the torque value in the "at least one auxiliary rolling body" (12) (**Claim 2**). Similarly, the reference teaches (Page 4, lines 31-36) that "One orders four engines 10, 26, 28, 30 so that the linear velocity of the cylindrical face of the wheel of drive 4 and the rollers of traction 12, 14, 16 is equal to v. The three rollers of traction 12, 14, 16 ... authorize wheel 4 to order the speed v of capillary 32 without harming this

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order.” As with the auxiliary rolling body (12) it is here understood that the torque settings of the auxiliary rolling bodies (14, 16) are controlled with reference to the torque of the reference rolling body to maintain the vertical velocity of the glass strand (**Claim 5**)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boscher (FR 2,767,810) as applied under 35 U.S.C. 102(b)/103(a) to parent claims 3 and 7, respectively.

With respect to **Claim 8**, Boscher teaches that the contact pressure P1 of the first draw-off unit and in the second draw-off unit may each be selected to provide a contact between the rollers and the glass strand surface which does not slip during the drawing process (Page 3, lines 37-41). The reference is silent regarding the particular details as recited in the instant claim wherein "when a predetermined maximum contact pressure force is exceeded" in the first draw off unit, the second draw off unit are engaged with the glass strand and/or the contact pressure force is increased between the glass strand and the second draw-off unit.

It is however the Examiners position, in the absence of any compelling and unexpected results to the contrary, that the claimed protocol for the engagement of pressing force upon the glass strand would have been a merely obvious extension over the prior art teachings of Boscher. Specifically, it would have been obvious for one of ordinary skill to seek to minimize marring of the drawn strand by minimizing both the amount and degree of physical contact with the apparatus. To this end, the claimed sequential engagement protocol for the first and second draw-off units would have presented a merely obvious alternative to the explicit prior art disclosure for one of ordinary skill seeking to minimize the potential for surface marring of the glass strand.

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Claims 10, 11, and 21-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boscher (FR 2,767,810) as respectively applied to claims 1-8 above, and further in view of the W. Haldenwanger company ceramic roller product brochure (Publicly available; August 19, 2000) and the NIST materials property data summary for sintered silicon carbide.

Boscher teaches that the reference roller (4) is At least partially “made out of a hard material such as steel” and that “coefficient of friction of the body of drive on the stem is low”. Additionally in a preferred embodiment the reference teaches that “The three rollers of traction 12, 14, 16 having a cylindrical face 24 less hard than wheel 4”.

Although the reference teaches that the auxiliary rollers should have a higher coefficient of friction than the reference roller, Boscher does explicitly limit the coefficient of friction of the roller surface as set forth in Claim 10, 21,23,25,27 nor does the reference explicitly disclose the use of a roller surface containing asbestos, asbestos substitutes, or SiC as per Claims 11,22, 24,26,28.

Although Boscher does not explicitly teach the use of silicon carbide rollers for the instant application, such rollers were commercially available on the open market from at least the W. Haldenwanger company

(<http://web.archive.org/web/20001118093500/www.haldenwanger.de/index2.cfm?rubrik=Halsic-R/Halsic-I>) at the time of the invention. Specifically the product brochure for the Halsic brand silicon carbide industrial rollers indicate (See English Language Equivalent

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Brochure) that the rollers share the following characteristics: "absolute dimensional stability despite extreme mechanical strain in high temperature applications – very good thermal shock resistance – excellent corrosion resistance – and low specific weight" (Pg 2, first paragraph). One having no more than an ordinary level of skill in the art at the time of the invention would have recognized the benefits of applying the heat resistant Halsic brand rollers in the elevated temperature Boscher glass drawing process. Specifically, it would have been obvious to one of ordinary skill to implement the commercially available rollers in the Boscher apparatus when seeking to maximize useful roller lifetime (**Claims 11,22, 24,26,28**).

A property summary provided by NIST for sintered Silicon Carbide of the general type utilized in the Haldenwanger rollers

(<http://www.ceramics.nist.gov/srd/summary/scdscs.htm>) further reveals that such rollers would reasonably be expected to present a coefficient of friction in the range of 0.4 to 0.7 which clearly overlaps the claimed range of 0.2 to 0.5 (**Claim 10, 21,23,25,27**).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L. Lazorcik whose telephone number is (571) 272-2217. The examiner can normally be reached on Monday through Friday 8:30 am to 5:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JLL


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